

[code executable on a processor that, with respect to each given future time period, generates a staffing requirement for given future time period as a function of the aggregate contact load that has been distributed into that given future time period and an agent average handling time that has been forecast for that given future time period].

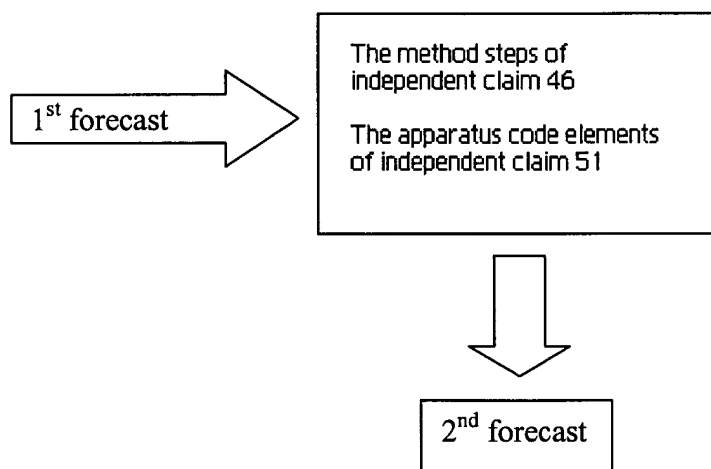
Please add the following new claim:

52. (new) The apparatus as described in claim 51 further including:  
code executable on a processor that, with respect to each of one or more given  
future time periods as reflected in the second forecast, generates a staffing requirement for  
that given future time period.

### **REMARKS**

This paper is submitted in response to the most recent Office action. As the Examiner knows, this prosecution has been going on now for some time, and there has already been one Personal Interview and an RCE filing. Numerous arguments have been presented as to why the claimed invention is non-obvious in view of the currently cited art. Those arguments will not be repeated in full again, as Applicants' position (traversing the pending rejections) is already known. Nevertheless, in an attempt to reach some closure on the prosecution of this important invention, the undersigned has carefully reviewed the pending claims and determined that it may be useful to clarify a point that has been previously argued and made known to the Examiner; to that end, independent claims 46 and 51 have been amended and are presented here for the Examiner's consideration. These amendments are made solely to document more firmly the arguments that have been made previously to the Examiner and that were implicit in the previously-presented claims, namely, that the method generates a forecast of contact load that actually differs from the forecast of contact load that was otherwise available in the prior art (and useful in generating staffing requirements). To emphasize this dichotomy, each independent claim now refers to two distinct forecasts, a first forecast, and a second forecast. The first forecast is a forecast of contact load expected to be received in each of a set of future time periods within a given future time range; in contrast, the second forecast is a forecast of

contact load expected to be handled in each of the set of future time periods within the given future time range. The second forecast, in effect, is derived (or adapted from) the data in the first forecast through the method steps or apparatus elements (code) that are affirmatively recited in the independent claims, as illustrated below:



To be clear, Applicants are seeking patent protection (in the independent claims 46 and 51) for the process illustrated above, and it is a process that is neither remotely disclosed nor suggested by the art of record.

The Examiner will note that independent claim 37 has been canceled. This action has been taken because when the subject matter of dependent claims 42-43 (also canceled) was included in claim 37, the result was pending independent claim 46. Thus, to reduce the number of contested issues, claims 37 and 42-43 have been canceled in favor of claim 46; however, such cancellation was not done to address the pending rejection, which is incorrect and remains traversed.

Claims 37-51 stand rejected under § 103(a) as being unpatentable in view of the “product of Pipkins” referred to as “Maxima Advantage” in the following Business Wire product announcements and an associated Pipkins press release:

“Mustang.com and Pipkins Join Forces In eService Workshop Management” – dated December 23, 1999, Business Wire;

“Pipkins Teams with Mustang.com to Enable Call Center Agents to Integrate Phone Call and Email Function” – dated March 16, 2000, Business Wire; and

“Maxima Advantage” Press Release, January 2000, from Pipkins, Inc., with an identified URL as: <http://www.tmcnet.com/articles/ccsmag/0100/0100labs1.htm>.

The rejection of independent claims 46 and 51 (prior to amendment) was unsound. In particular, for the reasons stated in the response filed August 26, 2004, any rejection based merely on the “product of Pipkins” is legally unsupportable as there no evidence in this record that any such product had the specific functionality required by the pending claims – clauses (b)-(c) in claim 46 being merely representative. The Examiner does not meet the Office’s burden to establish a *prima facie* case of obviousness by arguing that the two Business Wire accounts and the Pipkins press release about the Maxima Advantage “product” (the press accounts themselves being silent as to how the product actually works) means that the product has (or must have) the features of the claimed invention. Neither the Business Wire accounts nor the Pipkins’ press release is prior art as to the actual structural and functional characteristics of the Maxima Advantage product unless those characteristics are expressly described in the published documents, and they are not, for the reasons set forth below.

As described in paragraph [3] of the written description, workforce management systems are known in the art, and it is also known that such systems generate forecasts of call received volumes and call handling times based on historical data to determine how much staff will be needed at different times of the day and week, and that such systems then create schedules that match the staffing to the anticipated needs. Applicants are not attempting to claim this prior art approach. In contrast, the present invention is claiming an improvement to such schemes whereby an additional level of forecasting is done – a forecast of contacts to handle – and this unique forecast is neither disclosed nor suggested by the art of record, most especially in the cursory statements set forth in the product accounts describing the Pipkins Maxima Advantage product.

The prior art approach (including that implemented by Pipkins Maxima Advantage) is to merely schedule staffing to handle a given multimedia contact within a given interval in which the contact is received. This is no different from the well-known way in which call center workforce management systems handled incoming telephone calls. It is not, however, the approach described or claimed in the present invention. Rather, according to

representative claim 46, the inventive technique actually creates a separate, new forecast – what is referred to in the amended claims as a forecast of the number of contacts to handle. As described above, this second forecast (using the claimed method steps or apparatus code elements) is adapted (or derived) from a forecast of contacts expected to be received. Thus, the claims now clearly identify each of the first and second forecasts explicitly, and further how the second forecast is generated. Thus, generation of the second forecast begins based on a given service level goal “describing a maximum amount of time that may occur between receipt of a given contact and handling of the given contact.” According to the inventive technique, “for a given future time period of the first forecast,” the given service level goal is used “to identify a number of time periods over which the contact load in that given future period may be distributed.” A “given function” is then applied to the “contact load to allocate it over a given set of the identified number of time periods.” (This allocation is referred to in the written description as propagation). This process is iterated for additional future time periods within the given future time range; then, with respect to a given future time period, the contact load that has been allocated thereto is aggregated. In this manner, the aggregate contact load comprises the second forecast – a forecast of the number of contacts to handle. Only then does the workforce management system determine how much staff will be needed at different times of the day and week (neither method claim 46 nor apparatus claim 51 requires this additional step).<sup>1</sup>

Table I in paragraph [29] of the written description illustrates this unique creation of a separate “contacts to handle” forecast. As noted above, this is the recited “second forecast.” There is nothing in the prior art that remotely discloses or suggests this feature, which now is positively recited in each pending claim.

In particular, the December 23, 1999 Business Wire release just states that the Pipkins Maxima Advantage system enables the user to “forecast e-mail customer service representative (CSR) staffing requirements” and that the system can be used “to intelligently manage [an] e-mail customer service workforce, ensuring service level goals are met in the most cost-effective manner possible.” (See, Business Wire Release, at

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<sup>1</sup> Thus, as compared to the prior art, the staffing requirements are generated using the second forecast, not the first forecast.

paragraphs 4-5). This is not a description of the specific “contacts to handle” forecast generation technique that is affirmatively described in either independent claim 46 or 51.

Likewise, the March 16, 1999 Business Wire release makes the same statements and goes on to say that “the integrated system will provide Pipkins with incoming e-mail information such as e-mail offered, average handling time, and service level achieved. This information will enable a supervisor to staff e-mail response handling more efficiently.” (See, Business Wire Release, at paragraphs 14-15). This is a mere description of the use of historical data to generate staffing requirements; it is not a description of the specific “contacts to handle” forecast generation technique that is actually recited either in claim 46 or 51.

The January 2000 Pipkins press release (in describing the product’s Forecasting capability) simply states that the product “uses Merlang algorithms when calculating staffing levels, even when using multiple agent skill sets, and correlates marketing activities with projected call volumes.” (See, Release, Features section). The reference is otherwise silent as to any “forecasting” functions or features of the product and, of course, there is no technology or technical description set forth in the release itself.

As can be seen, there is nothing explicit in the references cited by the Examiner that would support a *prima facie* case of obviousness as to the specific subject matter - taken as a whole - that is positively recited in each pending independent claim. Then how is the “product of Pipkins” different from the prior art call center forecast, if at all? The references themselves are silent on this point. According to the description of the “Maxima Advantage” product on the current Pipkins’ Web site, however, “[f]orecasting for multi-media events (email, fax, web chat, etc.) is principally the same as for calls.” (See, <http://www.pipkins.com/multimedia.asp>, emphasis supplied). A copy of this page was previously submitted.

One can easily visualize the differences between using the prior art approach (such as suggested by Pipkins) and the present invention. As described in paragraph [29] of the written description, Table 1 below is a chart illustrating how the “contacts to be handled” (the “second”) forecast can be generated. As described there, the contacts expected to be received are allocated to the receiving and/or succeeding periods based upon the relative

propagation factors for each period. (This is the technique that is positively recited in subsection (c) of independent claim 46, for example). As seen in the Table, reproduced below, there are eight periods, P1-P8, and the contacts expected to be received are indicated by the bold number 10 under the P1 column, the number 20 under the P2 column, the number 30 under the P3 column, the number 40 under the P4 column, and the number 50 under the P5 column. (These are representative values, of course). Now, assume the service goal (*i.e.*, the percentage of contacts received in a given period that is desired to have handled within a specified number of succeeding periods) for contacts received in a period is to handle 100% by the end of the fifth succeeding period. (These are steps (a)-(b) in claim 46 in a representative embodiment). Also shown are the propagation factors for each period P1-P8. These factors are a relative indication of the number of contacts that may be handled within a period, and preferably they are based in whole or in part on the number of agents available, agent availability (the amount of time that an agent or group of agents may allocate to service contacts), excess capacity (the amount of time that an agent or group of agents has to handle additional work), minimum and maximum backlog goals, agent productivity (the average handling time for a contact type), agent schedule adherence, and the like. (These are features described, for example, in dependent claim 40).

For example, according to the inventive technique (step (c) in independent claim 46, for example), the 10 contacts received in period P1 are allocated as shown over periods P1-P6, the 20 contacts received in period P2 are allocated as shown over periods P2-P7, the 30 contacts received in period P3 are allocated as shown over periods P3-P8, the 40 contacts received in period P4 are allocated as shown over periods P4-P9, and the 50 contacts received in period P5 are allocated as shown over periods P5-P10, in this example rounded to the nearest tenth. Also shown are the propagation factors for each period P1-P8.

Table 1

Contacts Received/ Propagated	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
	<b>10</b>									
	0.5	1	1.5	2	2.5	2.5				
		<b>20</b>								
		1.7	2.5	3.3	4.2	4.2	4.2			
			<b>30</b>							
			3.3	4.4	5.6	5.6	5.6	5.6		
				<b>40</b>						
				5.7	7.1	7.1	7.1	7.1	5.7	
					<b>50</b>					
					8.9	8.9	8.9	8.9	7.1	7.1
Total Propagated	0.5	2.7	7.3	15.4	28.3	28.3	25.8	21.6	12.8	7.1
Propagation Factors for Each Period										
	1	2	3	4	5	5	5	5	4	4

At most, the prior art simply suggests taking historical information about the number of contacts expected to be received and then taking the same algorithms used to forecast calls to then forecast the number of contacts that are expected to be received in each given (e.g., 15 or 30 minute) time interval. In contrast, the present invention seeks claim coverage on a method that uses a “first” forecast (e.g., the contacts that are expected to be received in each such time interval) as input to a method (or an apparatus) that generates the “second” forecast that finds the best time to schedule handling of the contacts within a specific time range service level goal. As noted above, to emphasize the distinctive features of the present invention, the first forecast is identified in the claim 46 or claim 51 preamble, as “a first forecast of contact load expected to be received in each of a set of future time periods within a given future time range.”

In the example table above, the prior art at most would simply create a first forecast of the contacts to be received in each interval as follows:

{P1: 10, P2: 20, P3: 30, P4: 40, P5: 50}.

These contacts would then be used with average handling time to determine the staff needed using known methods. In this regard, it should be appreciated that the prior art assumes that these contacts (as identified above) will then be handled in real time. In stark contrast, the method disclosed and claimed in the present invention is addressed to “contacts that are not required to be serviced by contact center agents in real time,” (as described in the claim preamble). The method according to the present invention provides significant advantages in that it enables contact centers to reduce staffing costs, as such contacts need not be handled in real time.

Claim 46 distinguishes over the prior art technique at least in part by specifically describing the steps implemented to create the second forecast. In particular, the claim describes the steps that take place between the first forecast and the step of calculating the staff requirements – namely, the creation of a second forecast of when is the best time to schedule handling of the contacts within a specific time range goal. Continuing with the example above, using the claimed invention results in the second forecast to use to create staffing requirements. In particular, instead of: {P1: 10, P2: 20, P3: 30, P4: 40, P5: 50}, as would be the case if the prior art approach were used, execution of the method recited in claim 46 would generate the following representative forecast:

{P1: 0.5, P2: 2.7, P3: 7.3, P4: 15.4, P5: 28.3}.

The Examiner will also note that each independent claim 46 and 51 now emphasizes that the first and second forecasts are not the same. In particular, the second forecast is required to differ “from the first forecast in an amount of contact load in at least one future time period.” That this is the case can be seen in the above example.

The Examiner will also note that each of the independent claims has been further amended to replace the “distributed” phrasing with the word “allocated,” which is believed to be more precise. This change is not dictated by the prior art, which discloses neither distribution nor allocation (nor propagation) in the context as used here. Also, the phrase “real-time” has been changed to “real time.” In addition, the Examiner will note a minor change in claim 46 step (e) in that the wording “the given function in” has been omitted for clarity, as it is “steps (a)-(c)” that are iterated. No new matter has been included.



In considering the question of obviousness, the Examiner must consider the subject matter of each independent claim, taken as a whole. See, 35 U.S.C. § 103(a). As is self-evident, representative claim 46 describes a set of specific method steps that the Examiner has failed to locate in any of the cited art, and Pipkins itself describes the “product of Pipkins” in the same light as the prior art forecasting techniques. But, for the reasons set forth above, that is not the claimed invention. Stated plainly, there is no statement or suggestion in the art the sets forth any of the three method steps now positively recited. Thus, the three (3) cited product accounts – in of themselves – are insufficient to give rise to a prima facie case. Moreover, before the “product of Pipkins” itself is deemed prior art, the Examiner must establish that the product actually had the characteristics positively recited in the claims, and the Web page reference cited above (although not prior art itself) shows that at least the Maxima Advantage “product of Pipkins” described on that Pipkins’ Web page today is using the forecasting technique used for calls – not a “contacts to handle forecast.” The product accounts, as noted above, are virtually silent on this key point and, thus, there is no factual or legal basis for the Examiner to conclude that the “product of Pipkins” (as opposed to the descriptions) meets the standard of a prima facie showing either, especially in view of the way Pipkins now describes that product on its own Web site.


Stated simply, the evidentiary record – taken as a whole – fails to disclose or suggest any of the actual steps recited in claim 46. Claim 46 thus describes patentable subject matter.

Independent claim 51 is likewise patentable for the same reasons as argued with respect to method claim 46. In particular, Claim 51 describes an apparatus that corresponds to the method of claim 46. To preserve the parallel nature of the independent claims, the Examiner will note that claim 51 has been amended to remove the “staffing requirement ” code generating element, which element is now recited (in slightly broader fashion) in new dependent claim 52.

Each dependent claim is patentable for the reasons advanced with respect to its parent claim.

A Notice of Allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'David H. Judson', with a long horizontal line extending to the right.

By: \_\_\_\_\_

David H. Judson, Reg. No. 30,467

**ATTORNEY FOR APPLICANTS**